OCT 2 7 2005

FAX TRANSMISSION
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DATE: October 27, 2005 PTO IDENTIFIER: Application Number 10/537,075
PTO IDENTIFIER: Application Number 10/537,075 Patent Number
Inventor: Maria Keßeler, et al
MESSAGE TO: USPTO PTAS System
FAX NUMBER: (571) 273-8300
FROM: CONNOLLY BOVE LODGE & HUTZ LLP
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PAGES (Including Cover Sheet): 13
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Conf. No.: N/A

Group Art Unit: N/A

Examiner: Not Yet Assigned

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OCT 2 7 2005

In re Patent Application of:

Maria Keßeler, et al.

Application No.: 10/537.075

Filed: June 1, 2005

For: L-RHAMNOSE-INDUCIBLE EXPRESSION SYSTEMS

Commissioner for Patenta P.O. Box 1450 Alexandria VA 22313-1450

TRANSMITTAL OF TRANSLATION OF INTERNATIONAL PRELIMINARY **EXAMINATION REPORT**

Dear Sir:

Applicants enclose herewith the Translation of the International Preliminary Examination Report.

Applicants believe no fee is one with this communication. However, if a fee is due, the Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 03-2775, under Order No. 12810-00091-US, from which the undersigned is authorized to draw.

Dated: August 31, 2005

Respectfully submitted,

Hui-Ju Wu, Ph.D.

Registration No.: 57,209

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PATENT CUUPEKATIUN I KEALI

From the INTERNATIONAL BUREAU (15-CO-4064)

10/25/05 10:29

Notification of transmittal of copies of translation of the international preliminary report ON PATENTABILITY

ICHAPTER I OR CHAPTER II OF THE PATENT COOPERATION TREATY)

(PCT Rule 77-2)

BASE AKTIENGESELLSCHAF 67056 LUDWIGSHAFEN ALLEMAGNE

International filing care (doy/month/year)

27 November 2003 (27.11.2003)

Palante. Marken u. Lizenzen 27. Juli 2005

Dain of mailing (day/recedle/year) 21 July 2005 (21.07.2005)

Applicant's or agent's file reference 0000054108

Applicant

IMPORTANT NOTOTICATION

25/16

International application No. PCT/EP2003/013367

BASE AKTIENGESELLSCHAFT of #

Transmitted of the translation to the applicant.

The International Bureau transmits between a copy of the English translation made by the International Bureau of the international proliminary exemination report established by the International Proliminary Exemining Authority.

2. Transmittal of the copy of the translation to the elected Offices.

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The International Bureau of WIPO 34, chemin des Colombotios 1211 Geneva 20, Switzerland

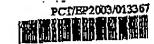
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Yolaine Cussac

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PATENT COOPERATION TREATY



Translation

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

			2 - Sub-miliona?
Applicant's or agent's file reference 0000054106	0000054106		
permational application No. International filing data (A PCT/ER2003/013367 27 November 2003 ((27,11,2003)	02 December 2002 (02.12.2002)
international Patent Classification (IPC) o C12N 15/63	r national dissoffication and H	rc	
Applicant	basf aktienges	ELLSCHAFT	
and is transmitted to the apparen	TESTIMINE IN ACTURE 24-		national Probusinary Examining Authority
This report is also accord	_	eers of the descript	ion, claims and/or drawings which have been ations made before this Authority (see Rule
सिल्ड का <u>प्र</u> कार व्यक्तिक व	sh tittel ofsh	eets.	
VII Certain defect	oort ment of opision wift regard to ment under Article 33(2) will apisastions supporting such a	novelty, inventive pregard to novelty, telement	step and industrial applicability inventive step or industrial applicabilitys
VIII (_)			
Date of submission of the demand Date of completion of this report			
13 May 2004 (1	1.05.2004)	2/	4 January 2005 (24.01.2005)
Name and malling address of the IPE	A/EP	Authorized office	a
Pacsimile No.		Telephone No.	
1			

International application No. INTERNATIONAL PRELIMINARY XXAMINATION REPORT PCT/RP2003/013367 L Basis of the report 1. With regard to the elaments of the international application. the international application as originally filed the description: , as originally filed 1-36 - 1-21 pages , flied with the demand 83260 filed with the letter of DONG the claims: , as originally filed presery , as amended (together with any statement under Article 19 PARCE. , filed with the demand ರಾಖಕನ ___ filed with the letter of _ pages the drawings , or originally filed DOLLOB , filed with the demand **DMBM** filed with the letter of pages the sequence listing part of the description: _ , co originally filed ___, filed with the densari Deges ____, त्रास्त्रं with the letter of With regard to the language, all the elements marked above were available or fundshed to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or fundshed to this Authority in the following language which is: the language of a translation furnished for the purposes of international rearch (under Rule 23.1(b)). the language of publication of the international application (under Rule 48-3(b)). the language of the translation furnished for the purposes of international proliminary examination (under Rule 55.2 and/ or 55.3). Who regard to any nucleotide and/or amino add sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence living: contained in the international epolication in written form. itled together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer reachile form. The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been firmished. The amendments have resulted in the cancellation of: the description, pages _____ the cisims, Nos. __ the drawings, shoots/fig_ This report has been established as if (some of) the amendments had not been made, since they have been considered to go bryond the disclosure as filed, as indicated in the Supplemental Box (Rate 70.2(c)).** * Replacement phases which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 ↔ Any replacement sheet containing such amendments must be referred to under item 1 and armened to this report.

Reasoned statement under Article 35(2) with regard to navelty, inventive step or industrial applicability;

NO

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/13367

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1.	Sintement				
	Novelty (N)	Claims	1-15	23(Y	
-		Cialms		NO	
	Inventive step (IS)	Claims	1-15	AKB	

Claims Industrial applicability (IA) Chains

1-15 YE8 NO Clatera

2 Citations and explanations

- Prior art documents D1 to D5 are as cited in the 1. International Search Report (the numbering follows the order in which they are listed).
- The subject matter of claims 1 to 15 is considered z. novel and inventive in relation to the searched prior art.

Document Dl describes a prokaryotic expression system that uses the L-rhamnose-inducible rhar promoter from E. coli. It is stated that in E. coli, L-rhamnose is actively absorbed into the cells by a transport system (RhaT) and converted by an isomerase (RhaA) into L-rhamnulose, which is then phosphorylised by a kinase (RhaB) (see page 33, column 2). Di points out that rhamnose is a relatively expensive sugar, and that for this reason the rhaB gene that encodes rhamnulose kinase was selectively inactivated, thereby reducing the amount of rhamnose needed for induction. The use of a rhamnose-negative strain, in particular a rhaB-negative strain, is recommended, especially for fermentations carried out as fed-batch processes (column 35, column 1). Document D2 also discloses a prokaryotic expression system that uses the

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/13367

L-rhamnose-inducible rhaPass promoter and a rhaBdeficient host cell.

The subject matter of claim 1 differs from the above in that a host cell which is deficient in L-rhamnose isomerase is used.

According to the applicant, example 8.2 of the application is evidence that, even in the case of cultivation in a farmenter, if rhamnose isomerase is excluded the added rhamnose is not metabolised, whereas D2 shows (see in particular page 100, left~hand column) that in the case of cultivation in a fermenter with a rhamnose concentration of 0.5 g/l the rhamnose is almost completely absorbed by the cells. This argument is basically tenable.

The problem addressed by the present invention is therefore seen as that of providing an improved method for expressing nucleic acids in prokaryotic host cells using the rhaPRAD promoter.

The solution involving the method according to claim 1 is considered inventive because a person skilled in the art would not expect, in the light of D1 or D2, that excluding the isomerase gene would have advantages over excluding the kinase gene. An inventive step can therefore be acknowledged for claims 1 to 15.

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

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	international application No.		lernational (Ping data (day) 1,11,2005	month/year)	Priority data (describerative) 02.12.2002	
International Patent Classification (IPC) or national destification and IPC C12N 1563						
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Tel. +49 69 2359-0, The 823460 epine d Fale +49 69 2379 4465		epine d	mhere No. 449	89 2399-8548		

Form PCT/IPEA/409 (cover share) (Jenusty 2004)

INTERNATIONAL PRELIMINARY **EXAMINATION REPORT**

International application No. PCT/EP 09/19887

L	B	sais of the report				
₹.	Lest pă	is report has been drawn up on the basis of the following elements (the replacement sheets received the receiving office in response to an invitation according to Article 14 are considered in the present our as "originally filled" and are not annexed to the report as they contain no amendments (Rules 70.16 of 70.17).);				
	De	eorlption, pages:				
	1-3	39 as originally filled				
	Th	e sequence liating part of the description, pages:				
	1-2	1 as originally filed				
	Ch	drav, No.:				
	1-1	5 as Originally filed				
	Drawings, sheets:					
	1	en originally filed				
With regard to the language, all the elements marked above were available or furnished to this in the language in which the international application was filed, unless otherwise indicated under						
These elements were evaluable or furnished to this Authority in the following temposes which is:						
		the language of a translation furnished for the purposes of international search (under Rule 23,1(b)).				
		the language of publication of the International application (under Rule 48.3(b)).				
		the language of the translation furnished for the purposes of injernational preliminary examination (under Rule 55.2 and/or 55.3).				
3 .	Wild the	h regard to any nucl eotide and/or amino acid sequence disclosed in the international application, International preliminally examination was comed out on the basis of the sequence listing:				
	×	contained in the international application in written form.				
	×	files together with the international application in computer readable form.				
		furnished subsequently to this Authority in written form.				
		furnished subsequently to this Authority in computer resolution form.				
		The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.				
		The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.				

Form PCIT/IPEA/409 (January 2004)

International application No. PCT/EP 03/13387

INTERNATIONAL PRELIMINARY EXAMINATION REPORT			
4,	The amendmetric have n	esulied in the espositation of	
	☐ the description,	pages	
	the claims,	Nos.	
	🔲 the drawings, sì	186(2)[0	

This report has been written disregarding (some of) the emendments, which were considered as going beyond the description of the invention, as field, as is indicated below (Rule 70.2(c)):

(All replacement sheets comprising amendments of this insture should be indicated in point 1 and alleched to this report).

- 6. Additional observations, if necessary:
- V. Reasoned statement under Article 25(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- 1. Statement

Novelty	Yes: No:	Claims Claims	1-15
qei8 evinevni	Yes: No:	Claims Claims	1-15
Industrial Applicability	Yes:	Cizims	1-18

Citations and explanations

eve separate sheet

INTERNATIONAL PRELIMINARY **EXAMINATION REPORT** SUPPLEMENTARY SHEET

International application No. PCT/EP 03/13387

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1. The prior-art documents D1 to D5 are hereinbelow numbered as they appear in the international search report.
- 2. The bublect matter of claims 1-15 is considered as novel and inventive in the light of the disclosed prior art.

Document D1 describes a prokaryotic expression system using the Lrhamnose-inducible rhaPean promoter from E.coll. It is detailed that, in E.coli, L-mamnose is taken up into the cells actively via a transport system (RhaT) and converted, using an isomerase (RhaA), into L-rhamnulose which is further phosphorylated by a kinase (RhaB) (page 33, column 2). The document mentions that thannous is a relatively expensive sugar, which is why the rhaB gene, which codes for rhammulose kinase, has been inactivated In a targeted fashion, whereby it was possible to reduce the amount of rhamitrate required for the induction. The use of a rhamnose-negative strain, in particular of an rhab-negative strain, is recommended especially for fermentations which are carried out as a fed-batch process (page 35, column 1). Document D2, too, discloses a prokeryptic expression system using the L-mamnose-inducible that the promoter and an that deficient host cell.

The subject matter of claim 1 differs from the above by the fact that a host cell which is deficient with regard to L-rhamnose isomerase is being used.

The applicant has put forward the opinion that example 8.2 of the application proves that, when rhamnose isomerase is eliminated, the added rhamnose is not metabolized, even in the case of cultivation in the fermenter, whereas it can be seen from D2 (see in particular page 100, left column), that, in the case of cultivation in the fermenter at a mamnose concentration of 0.5 g/l, virtually all of the rhamnose can be taken up by the cells. In its essence, this argumentation can be followed.

Form PCT/supplementary shock409 (sheet 1) (EPO-April 1997)

INTERNATIONAL PRELIMINARY **EXAMINATION REPORT** SUPPLEMENTARY SHEET

International application No. PCT/EP 03/13387

As a consequence, the problem to be solved with the present invention is seen in the provision of improved methods for expressing nucleic acids in prokaryotic host cells using the rhaPeAD promoter.

The solution of this problem by providing the method as distried in claim 1 is considered as inventive because, in the light of D1 or D2, the skilled worker could not have expected that eliminating the isomerase gene would have advantages over eliminating the kinase gene. Thus, inventive step is acknowledged for dalms 1-15.

Form PCT/supplementary sheet/409 (sheet 2) (EPO-April 1997)

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OCT 2 7 2005

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October 27, 2005

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10/537,075 Application Number

Patent Number

inventor:

Maria Keßeler, et al.

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Hui-Ju Wu, Ph.D.

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Attorney Dkt. #:

12810-00091-US

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Conf. No.: N/A

OCT 2 7 2005

Maria Keßeler, et al.

Group Art Unit: NA

Application No.: 10/537,075

Examiner: Not Yet Assigned

Filed: June 1, 2005

For: L-RHAMNOSE-INDUCIBLE EXPRESSION

SYSTEMS

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

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Dated: August 31, 2005

Respectfully submitted,

Hui-Ju Wu, Ph.D.

Registration No.: 57,209

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